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Resources, Conservation and Recycling
33 (2001) 147–151

resources, conservation and recycling

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Book reviews

***Waste Materials in Construction*, Edited by G.R. Woolley, J.J.J.M. Goumans, and P.J. Wainwright, Elsevier Science, Amsterdam/New York, 2000. ISBN 0-08-043970-7, 1049 pp. (hbk) [1]**

This book is the first in the new *Waste Management Series* from Elsevier, and in fact contains the proceedings of the International Conference on The Science and Engineering of Recycling for Environmental Protection, held in Harrogate, UK, 31 May–2 June 2000. This new series from Elsevier is one of the environmental book series that contains titles of interest to the audience of *Resources, Conservation & Recycling*.

The first volume presents the proceedings of the International Conference on The Science and Engineering of Recycling for Environmental Protection (WASCON 2000), in which 100 papers are published around a number of themes. WASCON 2000 is the fourth conference in a row dedicated to this important area for resource efficiency. All papers are inter-related in so far as potential users of secondary, recovered or recycled material have to be assured that the material is environmentally safe and stable, while meeting the quality needs of the modern construction industry. The papers vary from technical analysis of the characteristics of materials to studies of the policy environment of the use of 'waste' materials in construction and life-cycle analyses (LCA) of specific material flows. As history has shown, somebody's waste may be the treasure of another. Hence, waste may not be the most appropriate name for these material flows, and under-estimates the economic and environmental value of the materials, especially in light of the future demands of an environmentally sustainable economy.

Unfortunately, the papers are not organized in a clear fashion in the book; hence, the different themes are scattered throughout the book, which makes it difficult for the user interested in a particular theme to use the book. I would like to ask the editors in future proceedings to organise the proceedings around themes (or panels of the conference) to increase its usefulness.

[1] The book can be ordered from Elsevier Science BV, Global Sales, PO Box 211, NL-1000 AE Amsterdam, The Netherlands; or in North America from Elsevier Science Inc., PO Box 945, Madison Square Station, New York, NY 10160-0757, USA.

PII: S0921-3449(01)00077-5

Still, the book contains many interesting papers that warrant interest of the readers of *Resources, Conservation & Recycling*. In this review, we focus on those papers that assess the real-world use of 'waste' materials, and not on the technical analyses of material characteristics. Interesting are the developments that try to improve the sustainable character of construction materials using 'wastes', as found in several papers on research in, for example, Australia and the use of LCAs to improve material cycles from Finland. These and other papers also show that economics can be favorable for sustainable use of resources when accompanied by the right policy tools. Increasingly tighter government control of waste disposal around the world will favor the re-use of 'waste' materials, although some practices and standards may have to be changed to include performance-based standards to accommodate the use of 'waste' materials. Many of the papers show that construction materials using secondary materials are of high quality and can meet the needs of modern construction practices. Also, many papers show the challenges and directions for future research to increase the quality of the construction materials further.

It is interesting to note that papers came from 30 countries, a sign of the increasing awareness of the need to preserve our natural resources and increase the efficiency with which we use materials. However, there are still considerable differences between countries. For example, the use of additives (e.g. blast furnace slag) in cement making in the United States is still very limited when compared with other industrialized countries. Luckily, developing countries show an increasing interest in using 'waste' or secondary materials in construction, as evidenced by the relative large number of papers from developing countries. Arguably, the most interesting policies aimed to increase the sustainable use of 'waste' materials can be found in Europe, while many interesting experiments can be found in other countries, including developing countries. The most successful incorporate quality control in the policy implementation. It is also encouraging to see the interest in life-cycle management of materials by the producers, as a way to make materials environmentally more competitive, as demonstrated by the analysis of the potential for recycling of gypsum in Belgium.

The book provides a useful overview of the state-of-the-art of the use of waste materials in construction and will help the scientist and policy-maker to analyse the future needs of the field and to assess global opportunities. This book will contribute to the understanding of environmental problems concerning the re-use of 'waste' materials in construction, and hopefully to a wider acceptance of the use of such materials to reduce the environmental impact in a world that is increasing its resource appetite daily. It will especially help the technical understanding of the characteristics of the 'wastes' and the construction materials. I recommend this book for those readers interested in the state-of-the-art knowledge on resource re-use in the construction industry. Some of the lessons learned presented in a few papers may also provide important lessons for other areas to improve resource efficiency, and I would recommend publishing these in other forums as well.

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The Green Myth—Economic Growth and the Quality of the Environment
Marian Radetzki, Multi-Science Publishing, Brentwood, UK. Paperback, ISBN 0 906522 17 X

To those of us who engaged in the first global debate about economic growth and the environment back in the 1960s and 1970s, it seems surprising that, 30 years later, we are still debating the issue. Since the arguments have not changed, it must be either the case that the arguments are finely balanced, or that it is necessary to persuade a whole new generation of people unfamiliar with what the last generation decided. I incline to the latter view. There is a serious issue in the 'anti-growth' literature and this is that anti-growth is a cry of despair and impotence in the face of seemingly never-ending environmental decline. It is as well to try and understand this environmental equivalent of road-rage rather than reject it out of hand. The problem is that the frustration produces the wrong answer and 'pro-growth' authors focus on the wrongness of the answer rather than the causes of the despair. Marian Radetzki is Professor of Economics at Luleå University in Sweden and he has tackled these issues before. The current small volume is a welcome update on his earlier arguments.

Radetzki looks for the underpinnings of anti-growth sentiment. Thus he ascribes a 'green theory of value' to the deep ecology movement which elevates environmental values above all others, effectively giving them a lexical ordering (whatever the apparent trade-off, there must be no losses to the environment). Radetzki rightly notes the unavoidability of trade-offs. Indeed, this is implicit in human existence, not just human choices. He also notes that value systems unrelated to human preferences are vague and ambiguous, which probably explains how so many environmental philosophers make their living. Radetzki quotes with approval the Grossman and Krueger analysis of the 'environmental Kuznets curve' that suggests that pollution declines (after a point) as income per capita grows. He can be forgiven for not being familiar with the very recent developments in this literature. There is now far less certainty that the 'upside down U curve' for this relationship holds for many pollutants, and there are even doubts about the original Grossman–Krueger findings. One also wonders why so many of these studies studiously avoid land use conversion and biodiversity loss as indicators of environmental change.

Radetzki extends the Kuznets curve analysis to materials and energy use. It is indeed the case that energy per unit GNP has an inverted 'U' shape over time and